Series Prima, Opera Mathematica, Volumen Primum. Leipzig und Berlin, B. G. Teubner. 1911. Pp. xcv + 651.

Leonhard Euler (1707–1783) has been the most prolific mathematical writer of all past times. The great extent of his writings delayed the appearance of his complete works until the day when big scientific projects can be carried through by international cooperation. The mathematical world had never before witnessed such extensive international collaboration in a financial way, as when the means for publishing the forty-five large volumes of Euler's complete work were secured. While Euler's native country, Switzerland, did the most in proportion to her means, by contributing more than one hundred thousand francs towards the expense of this publication, many other countries, especially Germany, Russia and France, aided very liberally.

In our own country, the American Mathematical Society contributed five thousand francs and our libraries, doubtless, contributed much more in the form of subscriptions. The great academies of Paris, Berlin and St. Petersburg, of which Euler was a member, each subscribed for forty copies of the complete works, and thus aided the project not only financially, but still more by their great scientific influence. The last of these three academies contributed also five thousand francs in money. The total amount of subscriptions and money collected before the publication began amounted to over four hundred and fifty thousand francs.

The volume before us is in German, with the exception of a paper by J. L. Lagrange entitled, "Additions à l'analyse indeterminée," which appeared for the first time in the French translation of Euler's algebra in 1774. In addition to an extensive eulogy on Euler by Nikolaus Fuss, and a few introductory notes in reference to the publication of Euler's complete works, the present volume is devoted to a very elementary introduction to algebra under the title "Vollständige Anleitung zur Algebra mit den zusätzen von Joseph Louis Lagrange, herausgegeben von Heinrich Weber."

This algebra was prepared for publication after Euler had become totally blind. Euler desired to prepare a work which could be understood by every one and which would be complete in every particular. He dictated it to a servant who had been a tailor and knew nothing about mathematics beyond the calculations involved in elementary arithmetic. It is said that this tailor understood it completely, and, by the time the more difficult subjects were reached, he could work out the details with ease.

The work was soon translated into Russian and into French, and it exercised a greater influence on the development of algebra during the eighteenth century than other work. It was translated into English in 1797 and a very large number of editions in various languages have appeared. While the greater part of it is devoted to very elementary questions in algebra, it proceeds gradually to such matters as the general solution of the cubic and the biquadratic equations, and especially to indeterminate analysis. In the latter part it is proved that the sum of the cubes of two rational numbers can not be the cube of such a number. This is a special case of the noted Fermat's theorem, for the complete proof of which a prize of twenty-five thousand dollars is now offered through the Königliche Gesellschaft der Wissenschaften in Göttingen.

The complete works of Euler are to appear in three series. The first of these is devoted to pure mathematics and will probably consist of 18 volumes. The second series, composed of 16 volumes, is devoted to mechanics and astronomy; while the third series, composed of 11 volumes, is devoted to physics, works of various contents and letters. The different memoirs will be republished in the same language in which they first appeared.

G. A. Miller

Applied Electrochemistry. By M. de Kay Thompson, Ph.D., Assistant Professor of Electrochemistry in the Massachusetts Institute of Technology. New York, The Macmillan Company. 1911.

The subject of applied electrochemistry has now become so large and important that a

book in English dealing with this branch of science demands particular attention.

The great difficulty in writing such a book is in the rapid developments which are being made in the subject, and it seems as if the method followed in Germany, of issuing monographs on a particular branch of applied electrochemistry, was really more practical than attempting to include them all in one book.

In the present volume Professor Thompson has fifteen chapters, ten of which deal with electrolysis in the wet way, the remaining chapters being devoted to the electric furnace and its products.

There are necessarily a great many processes to be described in such a program, but notwithstanding this a considerable part of the space is devoted to theoretical considerations. While the theoretical discussion is important, there are many good books which deal with this exclusively, and it would seem perhaps better to have expanded the description of the actual processes themselves.

Thus the refining of copper, which is an electrochemical process of the first magnitude, is described in seven pages, and aluminium, which is manufactured on a very large scale, is dealt with in five pages, and the actual process is described in a few lines without illustration.

The book as a whole, however, serves a very useful purpose, giving a great deal of information on a long list of subjects. Abundant references are furnished and the illustrations are excellent. One typographical error occurs, however, which seems a pity, the name of Moissan is invariably printed *Moisson*.

The contents of the book is as follows: Coulometers, Electrochemical Analysis, Electroplating, Winning and Refining Metals in Aqueous Solution, Reduction and Oxidation, Electrolysis of the Alkali Chlorides, Electrolysis of Water, Primary Cells, The Lead Storage Battery and the Edison Storage Battery, The Electric Furnace and Products of the Arc and Resistance Furnaces, Electrometallurgy of Iron and Steel, Fixation of Atmospheric Nitrogen, The Production of Ozone, Appendix, Name and Subject Indexes.

SAMUEL A. TUCKER

Lippincott's New Medical Dictionary, a vocabulary of the terms used in medicine, dentistry, veterinary medicine and the allied sciences, with their pronunciation, etymology and signification, including much collateral information of a descriptive and encyclopedic character. By HENRY W. CATTELL, M.D. Philadelphia and London, J. B. Lippincott Company. 1911. Freely illustrated with figures in the text. Second edition. 8vo. Pp. xvi + 1108. Price $5.

There is hardly any field of science that is more in need of a technical dictionary than medicine. One might trace back the first attempt to provide the medical profession with such a work as early as circa 1300, when Simone Cordo of Genoa wrote his "Synonyma medicinae sive clavis sanitatis" (editio princeps, Milano, 1473). In the United States the first medical dictionary (not taking into consideration the American editions or reprints of English medical dictionaries) to be issued was published in 1808 by John Redman Coxe, of Philadelphia (1773–1863), professor in the University of Pennsylvania and one of the leading American physicians in the first half of the last century.

Since then here and abroad numerous medical dictionaries have been published. As one of the best, if not the best, in another language, we consider Walter Guttmann's "Medizinische Terminologie" (4 Auflage, Berlin, 1911). In England Richard D. Hoblyn's dictionary of terms used in medicine and the collateral sciences (14th edition, London, 1909) takes a very high rank.

In Lippincott's "New Medical Dictionary," written by Dr. Henry Ware Cattell, of Philadelphia, we have a work which not only equals those just mentioned, but even excels them in completeness, thoroughness and encyclopedic method. However, it is only just to state that owing to the low educational requirements and inadequate instruction in many of our medical colleges an American medical dictionary must be written under conditions entirely different from those in other coun-